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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,743	06/30/2003	Douglas E. Fain	S-92,821	2559

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EXAMINER
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TUROCZY, DAVID P

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/611,743

Applicant(s)

FAIN ET AL.

Examiner

David Turocy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4,5,7-15 and 18-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-5, 7-15, 18-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/17/2006 has been entered.

### ***Response to Amendment***

2. Applicant's amendments, filed 7/17/2006, have been fully considered and reviewed by the examiner. The examiner notes the amendments to claims 4, 18, 22, and 23 and the cancellation of claims 2, 3, 6, 16, and 17. Therefore claims 4-5, 7-15, 18-24 remain pending in the instant application.

### ***Response to Arguments***

3. Applicant's arguments are directed to newly added claim limitations that were not present at the time of final rejection and therefore the arguments are deemed moot and will be addressed in the prior art rejections that follow.

4. Applicant's arguments with respect to the combination of Levy and Funke have been considered persuasive for the point of non-disclosure of hydroxyl groups on the surface of the alumina and therefore the modification would not be reasonably

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successful. However, a new rejection is set forth below in view of US Patent 4957890 by Wieserman.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 4-5, 7-15, and 18-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The added limitation of a inorganic membrane having "an initial pore radius of at least 18.5 Å" appears to be new matter. The examiner cannot locate support in the specification for all inorganic material with pores larger than 18.5 Å all within the scope of the claimed limitation. Particularly, the specification does not disclose the entire range of pore radii larger than 18.5 Å or an exemplary number of species within the range and therefore such a claimed limitation is deemed new matter.

The examiner notes the disclosure in example 1 of the specification of 18.5 Å but such a disclosure only supports a pore radius of 18.5 Å and not the entire range as claimed, more particularly 18.5 Å as *the lower limit* with an infinite upper limit.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 4-5, 7-15, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy et al. (US 5,789,024) in view of Funke et al. (US 6,051,517) and further in view of Weiserman et al. (US Patent 4957890).

Levy discloses a method for reducing the pore size of an alumina membrane with a mean pore size above 18.5 Å, wherein the alumina makes up the pore walls and depositing material on the surface of the pore walls to provide pores with a mean pore

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size less than 8 Å, and preferable 3 Å, which is "about 2.5 Å" as claimed (Column 7, lines 15-58). However, Levy fails to disclose the coating process as claimed.

However, Funke teaches the claimed process for coating a thin film within cracks and conduits of a membrane at col. 4, lines 20-50, col. 4, lines 60-68, col. 7, lines 10-15, 25-30, and 60-65, col. 8, lines 30-45, col. 9, lines 1-3 and 35-50, col. 10, lines 21-55 and col. 11, lines 34-38. Funke discloses the ALD process is superior to known vapor processes because the process is more predictable and dependable (Column 7, lines 1-4). Funke discloses repeating the process as desired to achieve the appropriate thickness and membrane characteristics (Column 6, lines 40-45). Funke teaches that the membrane may be zeolite or any other inorganic crystalline membrane that has surface hydroxyl groups. Additionally, Weiserman discloses alumina membranes have hydroxyl groups on the surface (column 6, line 63-column 7, line 10).

Therefore, taking the references collectively, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Levy to coat the interior of the pores using the process as taught by Funke to provide the pores with a coating with a reasonable expectation of success because Funke discloses ALD assisted coatings onto membrane surfaces with a hydroxyl group and Weiserman discloses alumina membranes are known in the art to have surface hydroxyl groups for bonding. The prior art can be modified or combined to reject claims as prima facie obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375.

As to claims 14 and 15, Levy in view of Funke and Weiserman teaches the limitations of claim 4, as shown above, but does not explicitly disclose coating only one

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side of the membrane, such as by placing the membrane on a holder. However, because the purpose of the membranes disclosed in the above references is to filter material, which involves passing a medium through the membrane to allow some material to pass through based on the adjusted pore size and such passing through is only usually performed from a single direction through the filter to avoid dislodging trapped material filtered out by the membrane, it would have been obvious to coat only the inflow side of the filter to adjust the pore size thereof because that is the side at which filtration is performed and coating only one side would have the clear advantages of saving process time and cost by coating only one side as opposed to both sides.

10. Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy in view of Funke and Weiserman and further in view of US Patent 4108920 by Ryu.

Levy in view of Funke and Weiserman teaches an alumina membrane with surface hydroxyl groups as discussed above, however, Levy in view of Funke and Weiserman fails to explicitly teach of gamma alumina.

However, Ryu, teaches that gamma alumina is known to contain surface hydroxyl groups (Column 1, lines 60-67) and therefore it would have been obvious to one of ordinary in the art to use a gamma alumina membrane in the process of Levy in view of Funke and Weiserman with a reasonable expectation of success because Ryu discloses gamma alumina is known to have surface hydroxyl groups. The prior art can be modified or combined to reject claims as prima facie obvious as long as there is a

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reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David Turocy  
AU 1762

  
**TIMOTHY MEEKS**  
SUPERVISORY PATENT EXAMINER